a trace of paraffin would be without effect in the experiments of Meyer and Larson in which an abundance of more suitable carbon sources is present. Haag[5] writes: ". . . Bacterien wachsen auf den Paraffinstückchen nicht, wenn andere Kohlenstoffquellen (Glyzerin, Zucker) vorhanden sind". In Meyer's tests sucrose was added as a carbon source and in Larson's experiments the moulds were growing in the tissue of the flatworms. It is inconceivable that a trace of paraffin could account for the sixteen-fold increase in dry weight of *Aspergillus* reported by Meyer.

Dr. Klar states, "it is clear that the water used . . . was twice-distilled", but it is not clear to us how he is in a position to describe our technique, which was not mentioned in the communication. As a matter of fact, the 0·5 per cent heavy water is stated by the manufacturer to contain 0·01 per cent alkali and a trace of organic matter. We therefore distilled five times, including twice from concentrated permanganate, and we fail to see how any significant impurity could survive this treatment and exert an effect under conditions in which salts and organic nutrients are added to both the heavy water and controls. Moreover, we found that 0·06 per cent heavy water was without a noticeable effect on moulds even after being in contact with rubber stoppers coated in paraffin.

The results with moulds are supported by the greater length of life of *Spirogyra* and Planaria and the slight slowing down of zymin and pancreatin to which results the paraffin explanation could not be applied. Also, Richards[8] has found an increase in dry weight of yeast in our dilute heavy water.

I do not doubt Dr. Klar's experiments showing that paraffin in the absence of other material may support the growth of certain moulds—indeed, this has been known for more than a quarter of a century.

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[1] *Science*, **79**, 210; 1934.
[2] NATURE, **133**, 873, June 9, 1934.
[3] *Centralb. Bacteriol.*, Pt. 2, **16**, 382; 1906.
[4] *Archiv. Hygiene*, **97**, 12; 1926.
[5] *ibid.*, **97**, 28; 1926.
[6] *Biochem. Z.*, **193**, 85; 1928.
[7] *Biochem. J.*, **26**, 133; 1932.
[8] *Amer. J. Bot.*, **20**, 679; 1933.

Mitogenetic Radiation of the Urea-Urease System

ALL fermentative processes hitherto investigated have been found to be accompanied by mitogenetic radiation; but owing to the complexity of the substrata and the mechanism of splitting, it is not always possible to attribute radiation to a certain phase of fermentative splitting. Therefore it is of interest to study radiation in rather a simple system. We have chosen the system of urea-urease.

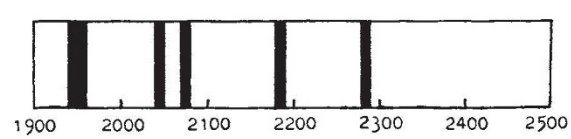

FIG. 1.

The ferment has been obtained from an extract of soy bean flour deprived of fat and urea, used in 5 per cent solution. The methods of investigation and in particular those of spectral analysis have been the usual ones employed in our laboratory and recently described in Prof. Gurwitsch's recent monograph[1].

The spectrum of radiation (Fig. 1) has been established on the basis of about three hundred experiments. The whole mitogenetic region has been broken up into strips of 10 A. width.

In a number of other experiments in our laboratory, it has been ascertained that all substrata subject to fermentative disintegration are also capable of emitting secondary radiation when irradiated by mitogenetic rays. Urea is no exception, and by radiating it we have succeeded in obtaining the secondary radiation of approximately the same intensity as in the case of the fermentative process.

The full details of our results will be communicated elsewhere.

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[1] "L'Analyse mitogénétique spectrale". Paris: Hermann et Cie., 1934.

Bird Migration and the Red Sea

THAT change of temperature has little to do with bird migration is well illustrated by the fact that flocks, apparently of ducks, are seen as early as the middle of August, moving south past the Biological Station of the University of Egypt at Ghardaqa just south of the entrance to the Gulf of Suez. Not only are they beginning their migration when it is warmest in the north, but also, a few days after passing here, they enter the hot part of the Red Sea, where, in August, conditions are truly dreadful from the human point of view.

I write in order to point out the excellent position of this Station for observation on this fascinating subject. The Red Sea is evidently a main route, and appearances suggest that at this point two lines cross, a north to south-west line via Sinai and the Nile, and the main line north-west to south-east along the Red Sea coast. I have neither the leisure nor qualifications for making adequate notes, but no one can see this wonderful sight without wishing that regular and detailed observations should be made.

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Ionic Product of Heavy Water

A PRELIMINARY determination of the dissociation of heavy water, by measurement of the electromotive force of cells containing pure deuterium electrodes in solutions of KOD and DCl in heavy water containing 95·5 per cent D_2O, has given the result that K_W for D_2O is of the order of one third the ionic product for ordinary water, at the same total ionic strength (0·1 and 0·05). It is proposed now to use the same method for an accurate determination.

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